BEFORE THE
PUBLIC SERVICE COMMISSION OF WISCONSIN

Application of Madison Gas & Electric Company for Authority to Change Electric and Natural Gas Rates Docket 3270-UR-117

DIRECT TESTIMONY OF MICHAEL J. VICKERMAN

ON BEHALF OF RENEW WISCONSIN

Q. Please state your name, occupation, and address.

A. My name is Michael J. Vickerman. I am Executive Director of RENEW Wisconsin, an organization whose directors and members support expanding the use of locally available renewable energy resources to meet the state's power needs. RENEW is located at 222 S. Hamilton St., Madison WI 53703.

Q. Please describe your professional qualifications?

A. Under my direction RENEW has advocated, and mobilized political support for, several pro-renewable policies adopted in the last 10 years, including the adoption in 2009 of uniform permitting standards for wind projects (SB 185) as well as the establishment in 1999 of Wisconsin's Renewable Portfolio Standard and a public benefits fund dedicated in part to renewable energy sources. I have been involved with many issues relating to renewable electricity, ranging from broad policy

mandates and customer-driven green pricing programs to such technical issues as renewable energy credit trading and windpower permitting ordinances. I was RENEW's representative on the statewide Task Force on Energy Efficiency and Renewables, which Governor Doyle convened in September 2003, and served as co-chair of the Renewables Workgroup. In that capacity I developed and negotiated several renewable energy policy recommendations for consideration by the full Task Force. These were: (1) a successor Renewable Portfolio Standard (RPS) that would result in a 10% renewable energy content by 2015 and (2) a State of Wisconsin commitment to source 20% of the electricity it uses from renewable energy sources. Both recommendations were included in a consensus package of proposed policy changes that were subsequently incorporated into a bill (SB459) that passed the Legislature and was signed into law in March 2006 (2005 Act 141) .

I have written and defended testimony in several PSC proceedings in recent years, including We Energies' application to build the Glacier Hills wind energy installation (6630-CE-302), Northern States Power-Wisconsin's application to convert its Bay Front 5 generator into a dedicated biomass unit (4220-CE-169), Wisconsin Power & Light's application to build the Nelson Dewey 3 coal-fired power station (6680-CE-170), Wisconsin Power & Light's application to build the Cedar Ridge wind energy installation (6680-CE-171), We Energies' application to build the Blue Sky Green Field wind energy installation (6630-CE-294), Forward Wind Energy's application to build a 200 MW wind energy

installation (9300-CE-100), Wisconsin Public Service Corporation's 2005, 2006 and 2008 rate cases (6690-UR-117, 6690-UR-118, and 6690-UR-119), and Wisconsin Power & Light's 2005, 2006 and 2008 rate cases (6680-UR-114, 6680-UR-115 and 6680-UR-116), We Energies' 2005 and 2007 rate cases (05-UR-102 and 05-UR-103), and Madison Gas & Electric's 2007 rate case (3270-UR-115). I am currently involved in the Commission's ongoing proceeding to establish a statewide rule for permitting wind turbines (1-AC-231) as a member of the Wind Siting Council.

Q. What is the purpose of your testimony?

A. The principal purpose of my testimony is to propose an alternative perspective on Madison Gas & Electric's proposal to increase Green Power Tomorrow premium from 1.25 cents/kWh to 2.00 cents/kWh, which RENEW opposes. RENEW believes that the conventional methodology of determining an appropriate premium is not appropriate in states that have adopted a Renewable Energy Standard requiring utilities to acquire additional supplies of renewable energy. In addition to presenting an alternative methodology to determining the appropriate premium, my testimony will also encourage Madison Gas & Electric (MGE), with the support of the Commission, to establish a net energy billing tariff for small wind energy systems up to 100 kilowatts.

Q. What is RENEW's interest in this proceeding?

A. RENEW's interest in this proceeding is varied and substantial. First, RENEW is a strong supporter of voluntary utility initiatives that enable customers to shape a utility's renewable energy acquisition strategy. Two of the renewable energy subscription programs offered by Wisconsin utilities—Green Power Tomorrow and We Energies' Energy for Tomorrow program—predate the law (1999 Act 9) that created the State's first Renewable Energy Standard (RES). It is our view that these programs have been effective conduits of renewable energy education and that their success paved the way for a significant expansion of the state's RES in 2006.

Second, RENEW played an instrumental role in MGE's decision to significantly expand subscribership in Green Power Tomorrow and incorporate a solar energy buyback rate into its program. Since its relaunch, RENEW has been a consistently strong supporter of Green Power Tomorrow. In June 2009 RENEW prepared a letter praising MGE's revamped program, which accompanied the nomination of that program for recognition by U.S. Department of Energy (USDOE) as the Utility Green Power Program of the Year. In that letter to USDOE, RENEW stated the following:

> "More than a renewable energy program, Green Power Tomorrow is a community-based sustainability initiative that supports about 50 MW of windpower that otherwise would not have been part of MGE's resource portfolio. Instead of settling for small, incremental growth for its program, MGE elected to pursue a more ambitious path that would be appealing and affordable to a broad cross-section of its customer base, and the results are impressive."

Green Power Tomorrow's significant expansion, and the lowering of the program premium from 2.67 cents/kWh to 1.00 cents/kWh in 2008, accommodated several large commitments from customers, including the State of Wisconsin, Dane County, and the City of Madison, which are ongoing.

Third, a significant fraction of RENEW members living in MGE territory are subscribers to Green Power Tomorrow. Some of these members, including myself, are also generating solar electricity for sale to MGE under the utility's Clean Power Partner initiative. The revenues generated through Green Power Tomorrow cover all the costs incurred in accommodating 1 MW of customer-owned solar electric capacity through a 25 cents/kWh buyback rate that makes ownership of such systems viable for some.

Fourth, RENEW played an instrumental role in shaping several provisions in 2005 Act 141, including the current RES and the State of Wisconsin's renewable energy purchasing requirement. Wisconsin has carved out a unique tradition of promoting both voluntary initiatives and public policy as complementary and mutually reinforcing pathways to increase renewable energy use in the state. Indeed, Wisconsin's goal of sourcing 10% of its electricity from renewable energy source, as enunciated in Act 141, is predicated on the continuing expansion of these pathways. To a certain extent, this leveraged interplay of public policy and private initiatives reflects RENEW's imprint on the renewable energy landscape. However, this interplay can cut both ways if decisions are made

that adversely affect the voluntary pathway. Our interest also takes into account the potential for negative consequences to renewable energy policy that would likely arise if voluntary participation in Green Power Tomorrow diminishes as a result of a higher premium.

In light of the above, RENEW strongly opposes the proposed increase in Green Power Tomorrow's premium from 1.25 cents/kWh to 2 cents/kWh. Quite the contrary, RENEW believes that there is a stronger case for reducing the premium back to 1.00 cent/kWh, the level that prevailed in 2008 and 2009, than there is in raising the premium. On this point RENEW is joined by the City of Madison, an intervenor in this proceeding and one of Green Power Tomorrow's largest subscribers.

Q. Is Green Power Tomorrow a successful program of its kind?

A. By all standard measures, MGE's voluntary renewable energy initiative is a roaring success. Last fall, MGE received the U.S. Department of Energy's Utility Green Power Program of the Year award. Among all voluntary renewable programs offered by U.S. utilities, Green Power Tomorrow ranks 3rd in the category of customer participation rate (9.6%), and 7th in the category of program sales as a percentage of total sales (4.9%). See (http://www.nrel.gov/news/press/2010/838.html). The program accounted for approximately 150 million kWh in sales in 2009. According to the utility's web site, the Clean Power Partner initiative has led to the installation of nearly 250 kW

of solar generating capacity since January 2008. In the area of wind, the results are even more dramatic. Wind projects in Iowa and Wisconsin now account for 137 MW of generating capacity owned by or under contract to MGE. Of that total, 67 MW serves Green Power Tomorrow subscribers, almost equal to the wind capacity applied to MGE's present and future RES requirements.

Q. Should the premium represent the cost differences between system power and the supply of renewable energy serving Green Power Tomorrow?

A. The conventional approach to setting the premium is valid as long as utilities are not subject to a state policy that requires them to increase their renewable energy supplies above the current percentage. When MGE began selling electricity at a premium through Green Power Tomorrow in July 1999, the state had not yet adopted a renewable energy standard (RES). The state's first RES was adopted in October 1999, several months after MGE fully subscribed its program offering. Since the requirement on MGE to increase its supply of renewable energy was not yet in existence, the premium set by MGE in early 1999 represented the difference between the utility's avoided fuel costs and the cost of electricity produced at its Rosiere wind project. Under those particular circumstances, it was appropriate to use the conventional approach in setting the premium.

Q. For the purposes of establishing a premium, why does it matter whether a state has an RES in place or not?

A. As initially conceived, initiatives like Green Power Tomorrow enabled self-selecting customers to use their own purchasing power to force an increase in the quantity of renewable energy serving a utility. Through this mechanism, a utility could add a higher-cost source of renewable electricity without having to establish that the energy is necessary and that the resource acquired is the most cost-effective option available. Back in 1999, if a utility needed to acquire an additional 21 million kWh per year of energy, it could pursue a plethora of options that were less expensive than building an 11 MW wind project in Kewaunee County.

That dynamic changes when a state establishes a Renewable Energy Standard, a mechanism that compels a utility to increase its supply of renewable energy as a percentage of total sales. Adoption of an RES does two things: (1) it designates renewable energy as a preferred resource class, and (2) it forces a utility to go out and acquire renewable energy for all of its customers up to the specified percentage. If the utility hasn't yet complied in full with this policy, then it could be said that the utility "needs" more renewable energy. This requirement prevails regardless of a utility's individual capacity needs or the existence of more cost-effective alternatives. Having more than enough generating capacity to serve current and projected loads is not a sufficient reason for obviating a utility's obligation to comply with an RES, nor does it matter if there are less expensive fossil alternatives available such as natural gas generation .

Q. Does MGE need to acquire more renewable energy to comply with Act 141?

A. Yes it does, though not until 2018, according to MGE senior management. Under Act 141, utilities are allowed to bank excess renewable energy credits and then apply those credits in the later years of the compliance period. However, these credits have only a four-year life. Presumably, MGE needs to replace its supply of banked credits with additional supplies of real-time renewable generation before 2019, when all renewable energy credits created under Act 141 will expire. However, nothing precludes MGE from achieving full compliance with the 2015 target before 2018.

Q. Is there a chance that the State of Wisconsin may in future years expand and extend the current RES?

A. Yes. A bill was introduced in the 2009-2010 legislative session that would have increased the RES to a significantly higher standard. If it had passed, that bill, known as the Clean Energy Jobs Act (CEJA), would have moved forward the 10% target to 2013, and would have extended the compliance period to 2025, at which point a utility would need to derive 25% of its electricity from renewables. The RES percentages in that bill were very similar to the "25 by 25" policy recommendation that appeared in the July 2008 report issued by Governor Doyle's Global Warming Task Force. Several Wisconsin utilities including MGE have expressed support in public for an expanded RES. It is quite likely that the Legislature will entertain proposals in the 2011-2012 session to increase the RES.

With that in mind, it would be prudent for utilities to carry a higher percentage of renewable energy on its system than is minimally necessary. A voluntary renewable energy program allows a utility to do that in a cost-effective manner.

Q. If a utility like MGE needs to acquire additional supplies of renewable energy in the foreseeable future, how should that affect the size of the premium?

A. The premium for Green Power Tomorrow should represent the cost difference between the supply of renewable energy acquired to meet an RES, which is absorbed by all utility ratepayers, and the supply that serves the voluntary program. Keep in mind that the acquisition of renewable energy to meet an RES is not a discretionary activity; it is a requirement under the law, and compliance with it cannot be achieved with fossil energy sources. Moreover, it scarcely need be said that there is no requirement under Wisconsin law to increase fossil energy sources in a Wisconsin utility's energy mix as a percentage of retail sales. Whether the renewable energy is spread through a utility's rate base or apportioned to self-selecting customers, the aim of both approaches is to displace fossil energy sources. Thus, it is appropriate to decouple the renewable energy premium from the cost of fossil generation and couple it with the real and ongoing cost of complying with an RES.

Q. Can a utility use renewable energy currently dedicated for a voluntary program towards RES compliance in the future?

A. Absolutely it can, which is important considering the appropriateness of decoupling the premium from the cost of fossil generation and coupling it instead with RES-compliant generation. There may be occasions where the cost of acquiring new sources of renewable energy for RES compliance exceeds the cost of the energy that is already under the utility's control but is not a part of the rate base. Should that situation arise, a utility may decide to discontinue its voluntary program and redirect that dedicated pool of renewable energy into the RES pool. When that happens, a utility could begin banking the stream of renewable energy credits that the voluntary program had up to that point effectively transferred to its subscribers. Thus, it can be argued that voluntary renewable energy programs provide utilities with greater flexibility in meeting future RES requirements, a benefit that accrues to subscribers and non-subscribers alike.

Q. What effect would this approach have on the pricing of voluntary renewable energy?

A. To begin with, MGE's proposal is driven not by an increase in the cost of renewable energy but rather a decrease in system energy costs. In contrast to the price volatility exhibited by fossil energy sources over the last three years, renewable energy is acquired through long-term supply contracts that fix the financial terms of the acquisition. Under the current approach to setting

premiums, however, the stable prices that are characteristic of renewable energy sources are lost when they are benchmarked to fluctuating fossil energy prices. However, that price stability will be recaptured if the premium is decoupled from fossil energy costs and coupled instead to the cost of a utility's RES-compliant energy. The only rationale for adjusting premiums up or down would be to capture the cost impacts from adding a renewable energy source to the program or subtracting one from the program.

There have been occasions around the country and in Wisconsin where utilities have exempted renewable program subscribers from having to pay short-term fuel surcharges that on the renewable energy portion of the energy they consumed. This has been We Energies' practice, which is described on its Energy for Tomorrow web page. (See http://www.we-energies.com/residential/acctoptions/eft.htm.) That particular outcome would not occur when the premium represents the cost difference between two discrete pools of renewable energy, because fossil energy costs would no longer be a factor in the premium.

Q. What is the appropriate level for the Green Power Premium going forward?

A. The only significant difference in the resource mix between MGE's RES-compliant energy pool and the Green Power Tomorrow program is the latter's supply of solar-generated electricity. Though it only constitutes 0.2% of the

program's total energy, the solar energy serving Green Power Tomorrow carries a significantly higher price tag than the wind installations serving that program. Since its launch of Clean Power Partners in January 2008, MGE has twice increased the capacity reservation for the solar energy supported by its 25 cents/kWh buyback rate, reflecting the rapid growth in subscriptions that occurred in 2008 and 2009. During that time period, MGE also entered into contracts with Iberdrola Renewable Energies USA and NextEraEnergy Resources to secure enough wind electricity to meet this growth spurt. There have been no significant changes to Green Power Tomorrow's energy supply in the last 18 months. All this leads me to believe that the cost differential between acquiring system renewable energy and operating the Green Power Tomorrow program hasn't changed significantly from early 2009, which then was approximately one cent/kWh. Therefore, it is our view if there is to be any adjustment in the renewable energy premium, it should be downward rather than upward.

Q. What is your response to those who contend that this alternative premium-setting methodology would result in a subsidy from all ratepayers to a subset of ratepayers?

A. I would say that, if anything, the reverse is true. RENEW believes that a well-run voluntary renewable energy program benefits nonsubscribing ratepayers in two ways. First, as noted above, the renewable energy supply reserved for such a program could at some later time be absorbed into the rate base to help a utility

comply with a future renewable energy requirement. By having a source of renewable energy under its control that could be redirected to meet an increased requirement in five or 10 years, a utility like MGE protects itself against the possibility of rising renewable energy costs that might be triggered by a higher mandate. Second, programs like Green Power Tomorrow enable utilities to achieve greater emissions reductions than would be possible through mere compliance with a RES. Given the breadth and volume of customer participation in Green Power Tomorrow, MGE has access to a powerful lever for reducing carbon emissions, another benefit that both subscribers and non-subscribers reap.

It is possible to quantify the emissions reduction benefit that Green Power Tomorrow subscribers achieved last year. Collectively they purchased 150,000 MWH of electricity through the program. In a study recently cited by the American Wind Energy Association, the Midwest Independent System Operator (MISO) estimated that each MWH of wind-generated electricity avoided the production, on average, of 1,277 pounds of CO_2 in its control area. (http://www.awea.org/newsroom/pdf/08-27-10-Wind_and_emissions_response.pdf) Multiply the MISO estimate by 2009 sales and the result is an emissions savings of 191,550,000 pounds of CO_2, or 95,775 tons. If one multiplies the 2009 emissions reduction totals by $10 per ton, the value of that service rendered by Green Power Tomorrow subscribers amounts to $957,750. This value represents nearly two-thirds of Green Power Tomorrow program revenues collected in 2009.

(150,000,000 kWh x $.01 = $1,500,000). At $20/ton, the value of the displaced CO_2 rises to $1,915,500, about $400,000 higher than the total amount of premiums collected from program subscribers in 2009.

Q. Under the new premium what would be the effective price of displacing CO_2 production through this program?

A. Assume a purchase of 1,000 MWH/yr, which would cost $20,000 if the Commission approves MGE's proposal. Multiply 1,000 by 1,277 pounds of CO_2/MWH = 1,277,000 pounds/year. Divide by 2,000 = 638.5 tons/yr. Divide $20,000 by 638.5. Result: $31.32/ton. What this means is that to stay in the program at the same level in 2011 as the year before, one would effectively paying a premium of $31.32 to displace each ton of CO_2. By way of comparison, It cost subscribers half that amount, or $15.66, to accomplish the same thing in 2008 and 2009.

In 2008 and 2009 Green Power Tomorrow provided subscribers with an affordable avenue for achieving their environmental and emissions reduction goals without imposing costs to nonparticipating customers. However, the affordable nature of this pathway to displacing CO_2 and other airborne emissions is diminished when the premium is substantially increased.

Q. Is it reasonable to assume that subscription volumes will remain constant in

2011 if the premium is increased from 1.25 cents/kWh to 2 cents/kWh?

A. No, such an outcome is highly unlikely. As noted in the direct testimony of MGE witness Gregory Bollom (PSC Ref# 130252), a number of subscribers have reduced the quantity of energy they had been purchasing to offset the increase in the premium that took effect January 2010. The reduction in purchases caused by the 25% increase this year will pale in comparison to a 60% increase that will take effect next year. In fact, the same testimony states that MGE expects program revenues to remain flat in 2011, which indicates that the utility anticipates that subscription volumes will fall by more than 50%.

Q. What sorts of customers will be adversely affected by a higher premium?

A. The customers that will be most adversely affected by a substantial increase in the premium would be those that rely on Green Power Tomorrow to achieve their own emissions reductions and sustainability goals. An example would be the City of Madison, which adopted a goal in 2007 to reduce CO_2 emissions from city operations by 25% by 2011, or 15,000 tons. See (http://www.cityofmadison.com/Sustainability/City/Mpower.cfm)

Q. Can these customers purchase renewable energy credits from other sources?

A. Yes, these customers can purchase renewable energy credits from aggregators like Sterling Planet and 3Degrees°. These entities buy credits from a wide array of renewable energy projects in the United States and resell them to retail providers

of renewable energy as well as individual customers. Relative to utility programs, the renewable energy credits from these sources are priced at a substantial discount.

These aggregators are particularly popular with companies that have a national presence, such as Kohl's Department Stores, the Menomonee Falls-based retailer. Kohl's purchases 1,367,376,000 kWh/yr of renewable energy per year, a quantity sufficient to equal the aggregate demand of all of its stores. Kohl's is now the second-largest purchaser of renewable energy in the United States. (See http://www.epa.gov/greenpower/toplists/top50.htm.)

On a historical note, the City of Madison in 2007 purchased renewable credits representing 34,000 MWH of generation. The credits were created from hydro facilities in Wisconsin and Illinois owned by North American Hydro. The City ventured into renewable energy credit markets to meet its internal CO_2 reduction goal, and at that time of the purchase MGE's renewable energy program was fully subscribed. As it did in 2007, the City of Madison could, in response to a sharply higher premium, look elsewhere in 2011 for a source of affordably priced renewable energy credits.

Q. How does MGE's proposed premium increase with those that other utilities have made similar requests in their 2011 rate filings?

A. If approved, MGE's proposed premium would surpass all others available in Wisconsin except Wisconsin Power & Light's Second Nature premium, which is also set at 2.00 cents/kWh. However, it should be noted that Wisconsin Power & Light has not adjusted its premium since Second Nature was launched in 2001. Other Wisconsin utilities offer a lesser premium, and those with pending rate cases are requesting premium hikes that are substantially less than what MGE seeks. The premium associated with We Energies' Energy for Tomorrow program is 1.388 cents/kWh. The premium for subscribing to Wisconsin Public Service Corporation's NatureWise program is currently 1.25 cents/kWh. In its current rate proceeding, Wisconsin Public Service Corporation has filed to increase its premium to 1.50 cents/kWh. The premium for subscribing to Northern States Power's Windsource program is currently 1.15 cents/kWh. In its current rate proceeding, Northern States Power has filed to increase its premium to 1.20 cents/kWh. The premium increases sought by other utilities this year are substantially more modest than that sought by MGE.

Q. Switching subjects, what should MGE do to encourage small wind installations in its service territory?

A. We recommend that MGE follow the example of We Energies and establish a net energy billing tariff for wind turbines up to 100 kW, which is the threshold that separates small wind energy systems from large wind energy systems. Such a rate, which is roughly equal to the production costs of a 35 kW Endurance turbine as

well as a 100 kW Northwind turbine, would facilitate market expansion in this segment. Between recent improvements of turbine performance and the adoption in 2009 of a 30% Investment Tax Credit for small wind turbines, this market segment is expanding in certain parts of Wisconsin. Unlike commercial wind generators, which aren't economically viable in locations where the wind resource is less than 6.5 meters per second, small wind turbines can perform efficiently in less windy locations. The newer small turbine models are quieter than their commercial-scale counterparts, and their shorter blades minimize moving shadows. They can be placed in urban locations such as Madison Area Technical College's Fort Atkinson campus and Wausau East High School without triggering complaints from neighbors. Small wind turbines are an excellent fit for schools, wastewater treatment plants, and farms.

Q. What has been the experience in Wisconsin to date with wind-specific tariffs?

A. Installation activity for wind turbines above 20 kW is strongest in utility territories where wind-specific tariffs are available. In addition to We Energies, which offers incentives for nonprofit system owners as well as an expanded net energy billing, several rural electric cooperatives have raised their net energy billing ceilings to 40 kW. Among them is Oakdale Electric, which now buys back at retail electricity generated by two wind turbines larger than 20 kW. The wind turbines serve a cranberry farm and a related business near Tomah. Even Alliant's experiment with a wind energy buyback rate produced a stimulating

effect during its brief eight-month existence. When combined with the federal ITC, Alliant's wind energy tariff stimulated installations serving for-profit entities like Fountain Prairie Farm in Columbia County and Green Leaf Inn in Walworth County.

Q. Please summarize your testimony?

A. RENEW asks the Commission to consider the merits of decoupling voluntary renewable premiums from fossil fuel prices and to couple them instead with the cost to utilities of complying with Wisconsin's RES. We believe that this methodology is better aligned with promoting Wisconsin's energy policy, which explicitly favors renewable energy over fossil energy sources. Moreover, the use of this methodology would lessen the frequency of premium adjustments. In this particular set of circumstances there would be no need to increase the premium for Green Power Tomorrow, because the prices of the renewable energy sources supplying program subscribers as well as those serving all utility customers haven't changed in the last 18 months. Last, we believe that the use of this methodology would be particularly valuable in the specific example of MGE, which has relied heavily on what had been an affordable and well-run voluntary program to increase its renewable energy supply substantially and displace significant quantities of CO_2 as a result. If RENEW's preferred methodology were substituted for the standard methodology that MGE uses, it would avoid the

perverse result of increasing the price of MGE's renewable energy when in fact its cost has remained constant.

Q. Does this complete your direct testimony?

A. Yes it does.